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Optimal conditions for exciting long-lived photon echo signals in impurity nanocrystals

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Abstract

The specific features of the formation of long-lived photon echo signals in dielectric nanocrystals doped with rare earth ions have been considered. It is shown that the optimal situation for observing long-lived photon echo signals in impurity nanocrystals is the absence of resonance between the vibrational modes of the nanomatrix and the impurity-ion electronic transitions, contributing to the spin-phonon relaxation. © Allerton Press, Inc. 2008.

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